Claims:

1. A method for estimating residual noise in the frequency range (271) of a desired part (240) of a signal,
c h a r a c t e r i z e d in that
the amplitude of the signal (114) comprising the noise is modified, and the signal (114) is combined with the modified signal (115) to create a noise estimation measure (116).

2. A method according to claim 1,
c h a r a c t e r i z e d in that
the noise estimation measure (116) is based on the average power content of the signal (114) and the modified signal (115) over their frequency spectra (270, 271, 272).

3. A method according to claim 2,
c h a r a c t e r i z e d in that
the noise estimation measure (116) is based on the average power content of the signal (114) and the modified signal (115) over one or more common ranges (270; 271; 272) of their frequency spectra.

4. A method according to any one of claims 1 to 3,
c h a r a c t e r i z e d in that
the signal (114) is attenuated primarily outside (270, 272) the frequency range (271) of the desired part (240) of the signal.

5. A method according to any one of claims 2 to 4,
c h a r a c t e r i z e d in that

the noise estimation measure (116) is based on the difference in average power content (232, 252) between the signal (114) and the modified signal (115).

5   6. A method according to any one of claims 1 to 5,
c h a r a c t e r i z e d   in that
the signal (114) is a digital signal.

7. A method according to any one of claims 4 to 6,
10   c h a r a c t e r i z e d   in that
the signal (114) is attenuated primarily outside (270, 272) the frequency range (271) of the desired part (240) of the signal (114) by means of a digital filter (108).

15   8. A method according to any one of claims 1 to 7,
c h a r a c t e r i z e d   in that
the noise estimation measure (116) is quantized in a number of different levels each indicating different levels of noise present.

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9. A method according to any one of claims 1 to 8,
c h a r a c t e r i z e d   in that
the desired part (240) of the signal (114) represents a selected channel of a digital cellular radio system, and
25   the noise estimation measure (116) or a postprocessed version thereof (117) is communicated to a link quality control system of said digital cellular radio system as an estimator of current link quality.

30   10. A method according to claim 9,
c h a r a c t e r i z e d   in that
a noise estimation measurement is performed during each of the basic time units (i.e. time slot or burst) of a channel of the digital cellular radio system, and the
35   result (116; 117) is communicated to a link quality

control system of the digital cellular radio system as an estimator of current link quality.

11. A method according to any one of claim 9 or 10,
c h a r a c t e r i z e d in that
several noise estimation measurements are performed, the results are stored, and the results are evaluated, and a derived trend is communicated to a link quality control system of a digital cellular radio system as an estimator of current link quality.

12. A method according to any one of claims 9 to 11,
c h a r a c t e r i z e d in that
the noise estimation measure transferred to the link quality control system is used by the digital cellular radio system to optimize user information channel throughput by adjusting the data transmission rate, the error correction depth and/or the type of modulation.

13. A method according to any one of claims 9 to 12,
c h a r a c t e r i z e d in that
the noise estimation measure is transferred to a digital demodulator (321) and used to adjust the receiver algorithm.

14. An apparatus for estimating residual noise in the frequency range of a desired part of a signal,
c h a r a c t e r i z e d in that
it includes means (108) for modifying the amplitude of the signal (114) comprising the noise, and means (106) for combining the signal (114) with the modified signal (115) to create a noise estimation measure (116), and means (106) for transferring the measure to a processing unit (107).

15. An apparatus according to claim 14,

c h a r a c t e r i z e d   in that
the means (106) for combining the signal (114) with the
modified signal (115) to create a noise estimation
measure (116) comprise a power meter for measuring

5   average power content of the signal (114) and the
modified signal (115) over one or more common ranges
(270; 271; 272) of their frequency spectra.

16. An apparatus according to claim 14 or 15,

10 c h a r a c t e r i z e d   in that
the means (108) for modifying the amplitude of the signal
(114) comprising the noise include means for attenuating
the signal primarily outside (270, 272) the frequency
range (271) of the desired part (240) of the signal

15 (114).

17. An apparatus according to any one of claim 15 or 16,
c h a r a c t e r i z e d   in that
the means (106) for combining the signal (114) with the

20 modified signal (115) to create a noise estimation
measure (116) comprise means for computing the difference
in average power content (232, 252) between the signal
(114) and the modified signal (115).

25 18. An apparatus according to any one of claims 14 to 17,
c h a r a c t e r i z e d   in that
it is adapted to handle digital signals.

19. An apparatus according to claim 18,

30 c h a r a c t e r i z e d   in that
the means (105) for attenuating the signal primarily
outside (270, 272) the frequency range (271) of the
desired part (240) of the signal comprise a digital
filter.

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20. An apparatus according to any one of claims 14 to 19,

c h a r a c t e r i z e d in that
it includes means (106; 107) for storing consecutive
values of the noise estimation measure, and means (106;
107) for processing the values to extract a trend, and
5   means (107) for communicating the individual values or
the extracted trend or postprocessed versions thereof to
a quality control system.

21. A mobile telephone,
10 c h a r a c t e r i z e d in that
it contains an apparatus, comprising means (106, 108) for
performing the steps of claim 1, for estimating residual
noise in the frequency range (271) of a desired part
(240) of a signal (114), and means (106, 107) for
15 storing, evaluating and transmitting resulting noise
estimation measurements or postprocessed versions thereof
(116, 117) to a link quality control system of a cellular
radio system.

20 22. A mobile telephone according to claim 21,
c h a r a c t e r i z e d in that
it is adapted to perform a noise estimation measurement
during each of the basic time units (i.e. time slot or
burst) of a channel of the digital cellular radio system.
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